

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

- Claim 1. (Withdrawn-Currently amended) A method for increasing cellulose biosynthesis in cotton plants, comprising the step of:
providing cells of said cotton plant with a chimeric gene comprising the following operably linked DNA fragments
- i) a promoter expressible in said cell of said plant;
 - ii) a DNA region coding for the protein comprising the amino acid sequence of ~~SEQ ID No. 5 or SEQ ID No. 6 or SEQ ID No. 7 or SEQ ID No. 8~~ or a variant thereof, said variant an amino acid sequence having at least 95% amino acid sequence identity to the amino acid sequence of SEQ ID No 6 and having the same enzymatic activity;
 - iii) a 3' region involved in transcription termination and polyadenylation;
thereby increasing cellulose biosynthesis in said plant.
- Claim 2. (Withdrawn-Currently amended) The method of claim 1, wherein said DNA region comprises the nucleotide sequence of ~~SEQ ID No. 1 from the nucleotide at position 121 to the nucleotide at position 1986, or SEQ ID No. 2 from the nucleotide at position 47 to the nucleotide at position 1906, or SEQ ID No. 3 or SEQ ID No. 4 from the nucleotide at position 2 to the nucleotide at position 1576, or SEQ ID No. 9.~~
- Claim 3. (Withdrawn) The method of claim 1, wherein said promoter is a constitutive promoter.
- Claim 4. (Withdrawn) The method of claim 1, wherein said promoter is a fiber-specific promoter.

Claim 5. (Withdrawn) The method of claim 1, wherein said promoter is an expansin promoter.

Claim 6. (Withdrawn) The method of claim 1, wherein said cellulose biosynthesis is increased in lint fibers.

Claim 7. (Canceled)

Claim 8. (Canceled)

Claim 9. (Canceled)

Claim 10. (Canceled)

Claim 11. (Canceled).

Claim 12. (Canceled)

Claim 13. (Canceled)

Claim 14. (Canceled)

Claim 15. (Canceled)

Claim 16. (Canceled).

Claim 17. (Currently amended) A chimeric gene comprising the following operably linked DNA fragments:

- i) a promoter expressible in plant cells;
- ii) a DNA region coding for a protein comprising the amino acid sequence of SEQ ID No. 6 or an amino acid sequence ~~a variant thereof~~ having at least

95% amino acid sequence identity to the amino acid sequence of SEQ ID No 6 and having the same enzymatic activity; and

iii) a 3'end region involved in transcription termination and polyadenylation.

Claim 18. (Currently amended) The chimeric gene of claim 17, wherein said DNA region comprises the nucleotide sequence of SEQ ID No. 2 ~~or SEQ ID No. 3 or SEQ ID No. 4.~~

Claim 19. (Original) The chimeric gene of claim 17, wherein said promoter is a constitutive promoter.

Claim 20. (Original) The chimeric gene of claim 17, wherein said promoter is a fiber-specific promoter.

Claim 21. (Original) The chimeric gene of claim 17, wherein said promoter is an expansin promoter.

Claim 22. (Original) A plant cell comprising the chimeric gene of claim 17.

Claim 23.. (Original) A plant comprising a plant cell according to claim 22.

Claim 24. (Currently amended) A seed of the plant of claim 23 comprising the chimeric gene of claim 17.

Claim 25. (Canceled).

Claim 26. (Canceled).

Claim 27. (Canceled).

Claim 28. (Canceled).

Claim 29. (Canceled).

Claim 30. (Canceled).

Claim 31. (Canceled).

Claim 32. (Canceled).

Claim 33. (Canceled).

Claim 34. (Canceled).

Claim 35. (Canceled).

Claim 36. (Canceled).

Claim 37. (Canceled).

Claim 38. (Canceled).

Claim 39. (Withdrawn-Currently amended) A method for identifying allelic variations of the genes encoding proteins involved in cellulose biosynthesis in a population of different genotypes or varieties of a fiber producing plant species, which are correlated either alone or in combination with the quantity and/or quality of cellulose production, and fiber production comprising the steps of:

- a) providing a population of different varieties or genotypes of a particular plant species or interbreeding plant species comprising different allelic forms of the nucleotide sequences encoding proteins comprising the amino acid sequences of SEQ ID No. 5, 6, ~~7~~ or 8;
- b) determining parameters related to fiber production and/or cellulose biosynthesis or each individual of the population;

- c) determining the presence of a particular allelic form of the nucleotide sequences encoding proteins comprising the amino acid sequences of SEQ ID No. 5, 6, ~~7 or 8~~ for each individual of the population; and
- d) correlating the occurrence of particular fiber or cellulose parameters with the presence of a particular allelic form of the mentioned nucleotide sequence or a particular combination of such allelic forms; and thereby identifying said allelic variations.